TORNADO AT ROSWELL, N. MEX.

By CLEVE HALLENBECK, Meteorologist.

[Weather Bureau Office, Roswell, N. Mex., June 15, 1923.]

The first tornado of record for the Pecos Valley of New Mexico and, according to pioneer residents, the first one ever known to occur in southeastern New Mexico, occurred at Roswell on the afternoon of June 8, 1923.

When first observed by the writer, at 3:48 p. m., the tornado cloud was about 15 degrees north of west, 7 miles distant, and suspended from near the southern edge of the nimbus area of an extensive, sluggish thunderstorm which at the time covered nearly half the sky. This thunderstorm had begun forming far up the west slope of the valley one and a half hours earlier, and was moving east-northeast against an east-southeast wind—a typical topographic thunderstorm such as is observed a score of times every summer. During the day, up to the time the thunderstorm began forming, strato-cumulus clouds moving in two directions were observed, the lower moving from the southeast and the upper from the southwest.

The tornado moved east-northeast, moving faster than the thunderstorm, and passed over the extreme northwest corner of Roswell, where it demolished a few houses, partly destroyed several others, and destroyed most of the barns, other outbuildings and windmills in its path. Two or three automobiles were wrecked, an airplane was stripped to its fuselage, a number of large trees were destroyed, and both wires and poles of electric lighting, power and telephone lines were torn down. Nearly a mile from the center of the tornado's path streets were blockaded by the branches, measuring up to 10 inches in diameter, that had been torn from the rows of shade trees lining the streets. The instrument shelters at two fruit-frost stations were blown over and two thermometers broken. There were no casualties, and only a few injuries. One entire family was badly mauled when the tornado played battledore and shuttlecock with the automobile in which it was riding, the latter became a shapeless wreck afterward, with its engine buried in the side of a hill.

When first observed by the writer, the tornado cloud was nearly vertical, with a ragged, truncated apex at least 150 meters from the ground. As it moved it became more and more inclined to the north, and when over the northwestern corner of the city was inclined fully 60 degrees from the vertical, while the base of the cloud had gradually grown wider, more ragged, and farther from the ground. In this manner it disappeared when about 10 degrees west of north of the station, becoming merged into the main cloud mass.

When nearest the station, the tornado was 1.5 mile due northwest, at which time a maximum velocity of 56 miles from the west was recorded at the station. Damage to buildings was confined to a path not more than 250 yards wide.

The tornado was accompanied by only a light rain, very little hail, and no thunder (except such as was due to its parent thunderstorm), but excessive precipitation, accompanied by a heavy fall of hail, followed along the same path an hour later. Buildings that remained standing in the path of the storm were plastered with mud on their west side, and spattered on their north sides, while both north and south sides bore scars and scratches made by flying gravel.

A number of individuals reported that three other tornadoes had previously formed in the southwest; that two of these were very short-lived, while the third passed directly over Roswell, high in the air, and when overhead "resembled a whirlpool in the clouds." These reports agree in all essentials, and very probably are true. The writer was busy, and saw but the last one, and very probably would have missed it had not an excited citizen called his attention to it.

The preceding account of damage done, etc., is compiled from accounts given the writer by people who visited the scene and not from personal observation, as he had no opportunity to inspect the damage himself.

DUSTFALL AT LUDINGTON, MICH., MARCH 25, 1923.

By CYRUS H. ESHLEMAN, Meteorologist.

[Weather Bureau, Ludington, Mich., June 25, 1923.]

A remarkable dustfall occurred at Ludington, Mich., and over an area extending east and west and a short distance apparently north and south, Sunday, March 25, 1923, between the hours of 4 and 6 a. m. Persons going out of doors noticed that the light snow which had fallen, amounting to about 0.4 of an inch, had a decided brownish tinge, and those who happened to be out earlier saw some of the dust come down with the snow. Capt. Michael Martin, of a Pere Marquette Line steamer, stated that when about 25 miles out from shore, bound for Manistee, he encountered the dust which came down like a great cloud of smoke.

The writer gathered some of the snow and dust and melted the snow. At first the sediment looked dark, but when it dried it again became brownish. Its composition was decidedly fine and powdery. Samples were sent to the University of Michigan, the Michigan Agricultural College, and the University of Wisconsin. An analysis was made also by one of the science instructors of the Ludington High School. All the reports of examination stated that organic matter was present. Numerous minerals were also identified. The general character, it was stated by Prof. Walter F. Hunt, of the University of Michigan, was that of loess such as is found at places in the Mississippi valley.

In the meantime numerous inquiries were mailed to Weather Bureau stations and other institutions or persons, with the view of learning the extent of the dust area. The replies to these inquiries indicate that the territory was 150 miles or more in length, from central Michigan across Lake Michigan into Wisconsin; and probably not more than 10 to 20 miles in width, though it is possible that to the north where snowfall was heavier the dust was thus hidden from sight.

The dustfall was unquestionably an unusual one, at least for this vicinity. A rough estimate of the total weight of the dust over the whole area, judging from that collected from a few square yards, would be at least 100 tons. Everywhere—on roofs, porches, sidewalks—after the snow melted the dust was noticeable. Even several months afterward on rough flat roofs some remained.

HEAVY RAINS IN SOUTHERN KANSAS, JUNE, 1923.

A. J. HENRY, Meteorologist.

[Weather Bureau, Washington, D. C., Aug. 1, 1923.]

The occurrence of heavy rains in the trans-Mississippi region is always an interesting meteorological event, whether considered as a purely meteorological phenomenon or in the light of its economic effects. It is to be remembered that, in Kansas, where abundant rain means so much to the agriculture of the State, too much rain, on